

Let's Investigate!

HANDS-ON SCIENCE

Grades
3–4

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Magical Attraction

Let's Find Out

How far does a magnet's power reach?

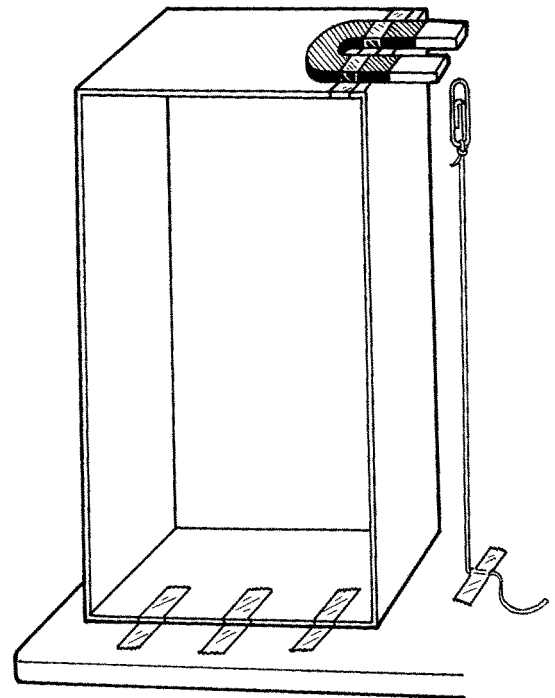
What You'll Need

- wand magnet
- shoebox
- tape
- (or long bar magnet)
- thread
- ruler
- paper clip
- scissors

What to Do

Work with a partner.

1. Tape the shoebox upright on a table.
2. Tape the magnet on top of the box, with one inch of it extending over the edge.
3. Cut a piece of thread a little longer than the height of the box. Tie one end to the paper clip.
4. Touch the paper clip to the bottom of the magnet. Gently pull down on the thread so that there is a bit of space between the magnet and the paper clip. As you hold the thread, have your partner tape it in place.
5. Carefully tug on the thread to lower the paper clip. Measure how far away it can go from the paper clip before it drops.

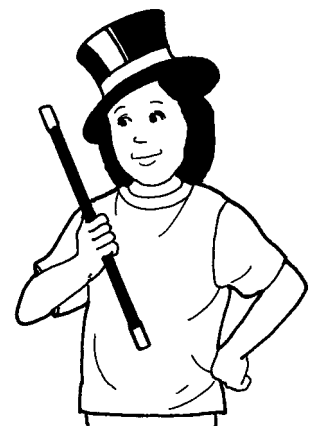


What You Saw

How far away was the paper clip from the magnet before it fell?
Write your answers on your record sheet.

Think About It

Two forces were acting on the paper clip. One was the force of the magnet. What was the other force? Why did the paper clip eventually fall?
Write your answers on your record sheet.



Name _____

Magnets

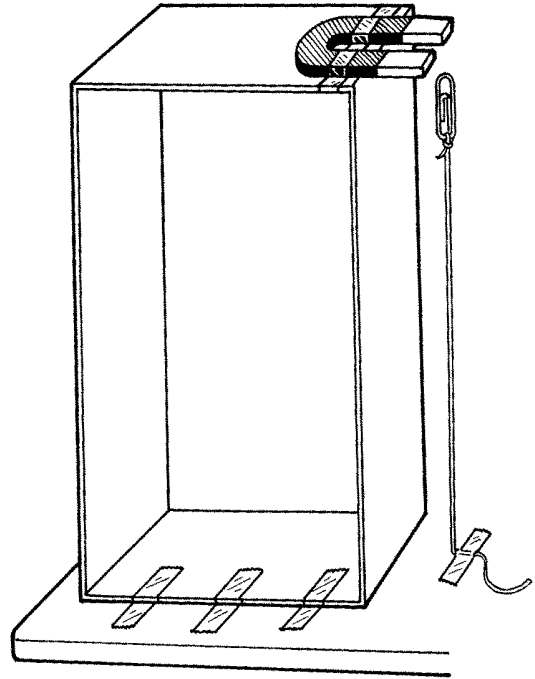
Magical Attraction

Let's Find Out

How far does a magnet's power reach?

What You Saw

How far away could you move the paper clip from the magnet before it fell?



Think About It

Two forces were acting on the paper clip. One was the force of the magnet. What was the other force?

Why did the paper clip eventually fall?



Try This!

Set up your experiment again. See if the paper clip will still "float" if you put a piece of paper between it and the magnet. Try other materials besides paper, too!

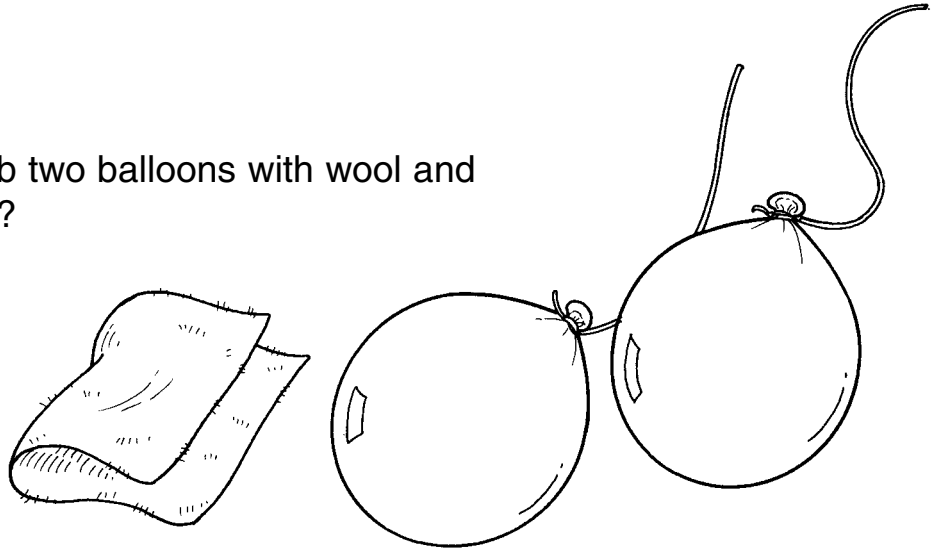
Together or Apart?

Let's Find Out

What happens when you rub two balloons with wool and place them near each other?

What You'll Need

- two balloons
- string
- wool cloth
- tape



What to Do

1. Blow up two balloons. Tie a 12-inch length of string to each one.
2. Tape the strings to the edge of a table so that the balloons hang down two inches apart.
3. Rub one balloon with the wool cloth. Rub quickly 30 times. Carefully put the balloon back so that it does not sway a lot while it hangs. Repeat the activity with the second balloon.
4. Let both balloons hang, and see what happens.
5. Hold the string of one balloon. Move that balloon close to the other one without the two touching. See what happens to the second balloon.

What You Saw

How did the two hanging balloons behave after they were rubbed with wool? What happened when you moved one balloon toward the other one? Write your answers on your record sheet.

Think About It

When you rubbed the balloons with the wool, they got an electric charge. Do you think objects with the same kind of electric charge attract (draw near to) each other or repel (push away) each other? Write your answer on your record sheet.